

# Scanning the Past

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John Howard Dellinger

Sixty-five years ago this month the PROCEEDINGS OF THE INSTITUTE OF RADIO ENGINEERS (IRE) included a paper on frequency standardization by J. Howard Dellinger of the National Bureau of Standards. In the paper, he pointed out that the great increase in usage of available radio channels during the past five years had made essential a substantial increase in the accuracy of frequency measurement and in the constancy of transmitter frequencies. He reported that the Bureau of Standards and several other organizations were engaged in a cooperative effort to achieve an accuracy of at least 0.001%. He called it a matter of "great urgency" that radio transmitters throughout the world be operated at constant frequencies. Dellinger stated that the best portable frequency standard available was the piezoelectric oscillator with its quartz plate maintained at a constant temperature, which he and his colleagues had found. He mentioned that he had recently taken such an oscillator to Europe to compare with frequency standards in England, France, Italy, and Germany. He concluded that the results had "justified every hope."

Dellinger was born in Cleveland, Ohio, in 1886 and graduated from George Washington University in 1908. He joined the staff of the Bureau of Standards in 1907 and soon became a radio specialist. One of his first assignments was to calibrate a wavemeter sent to the Bureau by a wireless company. His research on high-frequency ammeters became part of his doctoral thesis at Princeton University, where he received the Ph.D. degree in 1913. During World War I, Dellinger and his colleagues at the Bureau of Standards prepared two books on radio for use in

training Army and Navy radio operators and maintenance personnel. One of these entitled "Radio Instruments and Measurements" was published as *Bulletin 74* in 1918 and became a basic reference for many years. Dellinger became head of the radio section at the Bureau in 1919, and held this position until 1946.

During the 1920s, Dellinger served as Chief Engineer of the Federal Radio Commission (predecessor of the FCC) for two years, and represented the United States in several international radio conferences. He was active in the IRE and was President of the Institute in 1925. He also served on the IRE Board of Directors and as Chairman of a standards committee. He spoke at the first annual convention of the IRE in January 1926, and stated that radio engineers in the future would need increasingly to apply scientific principles in order to "advance beyond the empirical foundations." He received the IRE Medal of Honor in 1938.

In 1935 Dellinger reported observing a correlation between solar eruptions and simultaneous radio fading, a phenomenon that became known as the "Dellinger Effect." He also contributed to development of radio beacons and other navigational aids for aircraft. During World War II, he headed the radio propagation section of the National Defense Research Committee. He retired from the Bureau of Standards in 1948 and continued as a radio consultant. He died in December 1962.

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